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College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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a newsletter for commercial growers of fruit and vegetable crops

"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-333-6651, weinzier@uiuc.edu. The ***Illinois Fruit and Vegetable News*** is available on the web at: http://www.ipm.uiuc.edu/ifvn/index.html . To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or email address above.

For your calendar … September 8, 2006 -- Illinois Pumpkin Field Day will be held at the University of Illinois Vegetable Research Farm near Champaign, IL.

In this issue ...

Regional Updates

In northern Illinois, the last two weeks have brought mostly sunny days with average day temperatures in the low 60s to low 90s and night temperatures in the upper 40s to low 70s. The highest temperature during this period was recorded on June 18, 2006 when day temperatures were in the 90s and night temperatures in the 70s. The region received 1-2 inches of rainfall, with the greatest amounts recorded in the counties bordering Wisconsin. Soil moisture in the 0-6 inch depth is higher than last year. Apple and peach fruits are sizing well, and fruit thinning is still going on in many orchards. Tart cherry picking will commence very soon in many orchards. Most varieties of grapes have been pollinated, and berries are developing. Picking of June bearing strawberries is still going on in some farms. Codling moth monitoring is ongoing, and cherry fruitworm damage has been observed on some tart cherry fruits.

The cold weather experienced in early spring delayed many field activities, and planting of vine crops was completed last week. Cucumber beetle control is going on. Diamondback moth, imported cabbage worm, and cabbage looper adults and larva were observed in cabbage and broccoli fields. Colorado potato beetles were also observed feeding on eggplant and potato leaves. Stewart's wilt problems were observed in sweet corn in the Kankakee area.

Maurice Ogutu (708-352-0109; ogutu@uiuc.edu)

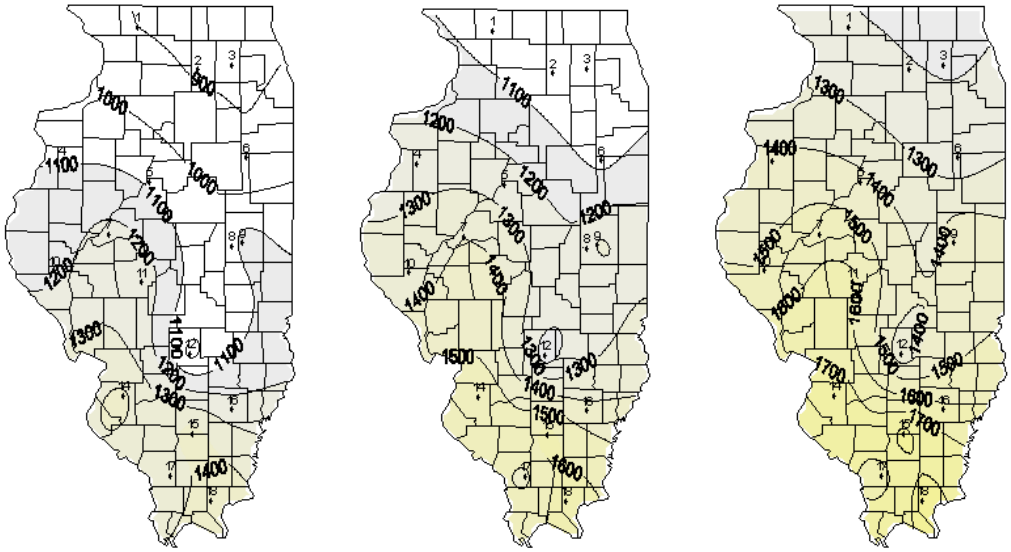
Degree-Days

Degree-day accumulations listed below for weather stations in the Illinois State Water Survey WARM data base have been summarized by using the Degree-Day Calculator site on the University of Illinois IPM site (http://www.ipm.uiuc.edu/degreedays/index.html). The list below includes only degree-day accumulations and projections based on a 50-degree F developmental threshold and a January 1 starting date, but other options that use different thresholds and specific biofix dates are available on the Degree-Day Calculator. The degree-day calculator is available as a result of a joint effort of extension entomologists (primarily Kelly Cook) and Bob Scott of the Illinois State Water Survey. If you have questions about how to use the site, contact me or Bob Scott (rwscott1@uiuc.edu). Note: The same message as in the previous issue … An "outlying" data point for Brownstown, coupled with missing data from Olney, is producing an unusual pattern of degree-day totals for south-central Illinois. This pattern seems to be the result of erroneous data.

Rick Weinzierl (217-333-6651; weinzier@uiuc.edu)

Degree-day accumulations, base 50 degrees F, starting January 1.

Station	County	Base 50F DD Jan 1 – June 21 Historic Average	Base 50F DD Jan 1 – June 21 2006	Base 50F DD Jan 1 – June 28 (Projected)	Base 50F DD Jan 1 – July 5 (Projected)
1. Freeport	Stephenson	928	899	1057	1212
2. Dekalb	Dekalb	992	889	1050	1207
3. St. Charles	Kane	908	892	1042	1191
4. Monmouth	Warren	1069	1095	1255	1414
5. Peoria	Peoria	116	1090	1257	1427
6. Stelle	Ford	1051	907	1075	1242
7. Kilbourne	Mason	1234	1232	1399	1569
8. Bondville	Champaign	1159	1031	1198	1367
9. Champaign	Champaign	1168	1149	1322	1496
10. Perry	Pike	1179	1169	1332	1500
11. Springfield	Sangamon	1244	1267	1446	1629
12. Brownstown	Fayette	1337	969	1150	1337
13. Olney	Richland	1330	Missing	Missing	Missing
14. Belleville	St. Claire	1408	1419	1596	1781
15. Rend Lake	Jefferson	1476	1455	1642	1835
16. Fairfield	Wayne	1418	1244	1430	1620
17. Carbondale	Jackson	1427	1299	1473	1653
18. Dixon Springs	Pope	1486	1470	1647	1830



Degree days, base 50 degrees F, since January 1, 2006.
Left: January 1 – June 21; center: January 1 – June 28 (projected); and right: January 1 – July 5 (projected).

Notes from Chris Doll

Phenology report: Summer is here by both the calendar and the temperatures. Relatively high temperatures have held fruit crops in the early mode, a day or two earlier than 2005, and 5-7 days ahead of "normal". Black raspberry harvest is finished, some early blackberries like Darrow and Prime Jim are at first pick, Lodi apples are ripe, and some early peaches are about ready to eat. My DD for codling moths is now at 978, and the wetting hours for Sooty blotch is 158. The first sweet corn is being harvested. Rain has missed the Back-40 for most of the month, with only 1.2 inches so far, and the years total is at 50 percent of average. Irrigation of apples is being done in a couple of commercial orchards.

Apples: The crop is sizing well. Some blocks of Reds and Goldens are light, but other varieties have set well. As stated previously, fire blight strikes have been seen in every orchard visited, but nothing traumatic. Other diseases are minimal at this time. Some European red mites have been found. Trapping of codling moths and tufted bud moths have declined to low numbers. Apogee treatments continue to show reduction of shoot growth, including a block at Boggio's Orchard on Summer Orchard Day.

Peaches: Most growers have completed the thinning process and are looking toward harvest. Bacterial spot infections have been prevalent in some blocks this spring, but other pests are minimal. Split pits will undoubtedly show up with the harvest of early maturing varieties. I bought a peck of Derby peaches in Gaffnesy, S. C. last week (at $12/peck) and 70 percent had split pits. I hope Illinois growers market better fruits.

Summer Orchard Day observations: In addition to the Apogee growth control mentioned earlier, a couple of things were noteworthy to me. The planting of Bartlett and sugar pears had a full crop of fruit on both varieties, so pollination was not a problem. And we saw what was determined to be 2,4-D injury to low inside leaves and shoots from a spray application to dandelions under the tree on a hot day. That was the third time in my career that this injury was seen. Most of the apples were on M26 rootstocks and growth and vigor were good with all scions. This has not been an outstanding rootstock in southern Illinois.

Miscellaneous:

- The National Peach Council newsletter for the Summer 2006 issue indicated that earlier peach harvest (compared with 2005) was expected in Georgia, Illinois, New Jersey, Pennsylvania and South Carolina. Yield estimates for these states are slightly higher also.
- Michigan State's suggestions for using NAA as a bloom-enhancing agent were updated in the June 6 "Alert". As mentioned previously, the timing for application of 5 ppm of NAA or a maximum of 8 ounces of Fruitone N per acre for this purpose is at 5, 7 and 9 weeks after bloom. It can be included with normal cover sprays. Two precautions were given--avoid applying at temperatures above 95 degrees, and decrease the NAA amount by 33 percent if a surfactant or oil is in the mixture.
- The stress factors of heat and drought that influence calcium uptake are common in our summer months. For most apple varieties, calcium applications should be made to head off cork pitting.

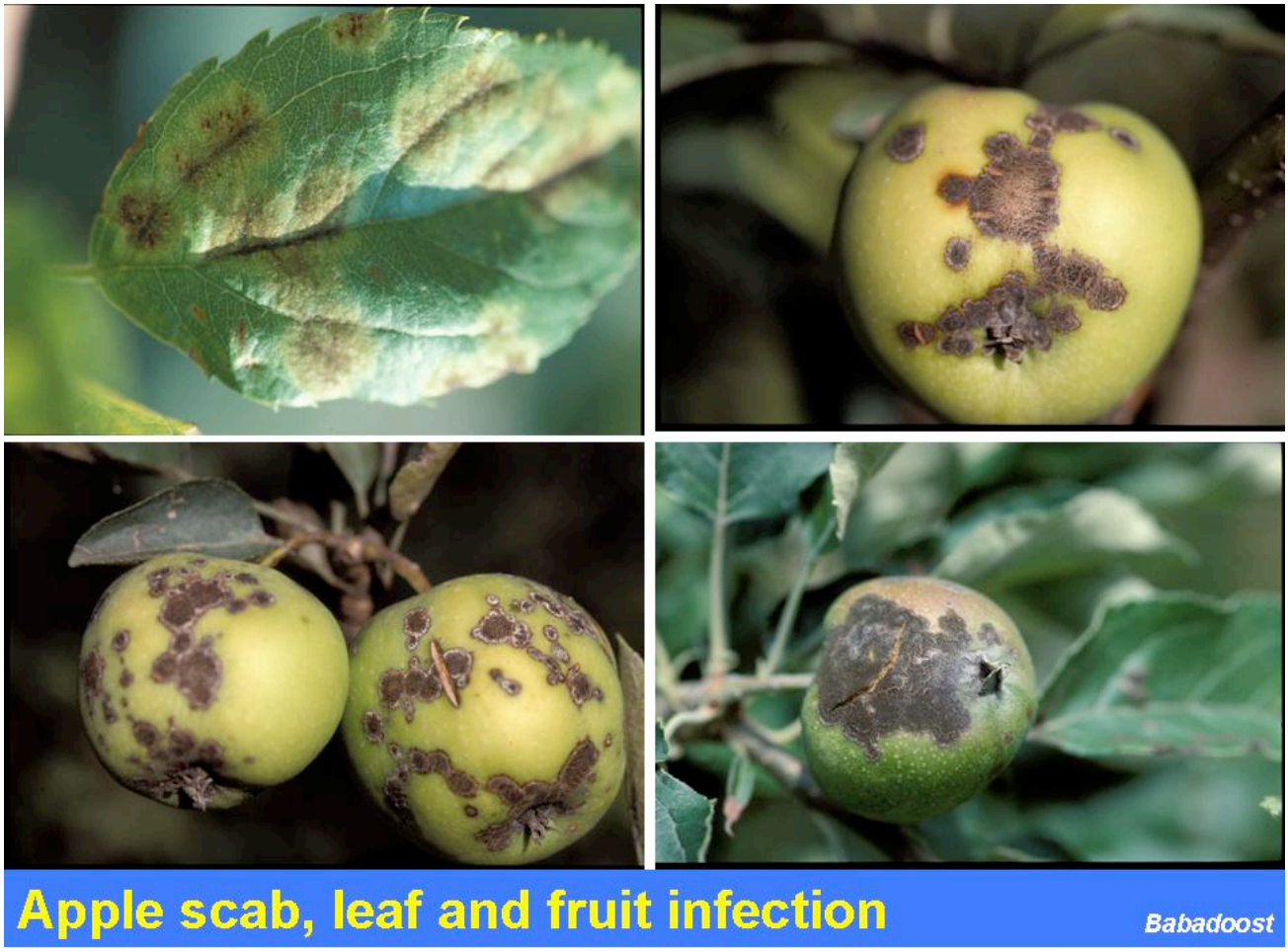
Chris Doll

Fruit Production and Pest Management

Apple Diseases in Illinois Orchards

Fire blight: As previously predicted, severe shoot and fruit blight, caused by fire blight bacterium (*Erwinia amylovora*), have occurred in some of apple orchards in Illinois in 2006. Fire blight is one of the most important diseases of apples and pears in Illinois. At this time, not much can be done to control fire blight in apple orchards. To control fire blight of apple and pear: (i) choose the proper cultivars, (ii) select planting sites with good soil drainage, (iii) follow proper pruning and fertilization, (iv) prune out fire blight cankers during the dormant season (make the pruning cut at least 6 inched below the last point of visible infection), (v) spray trees with a copper fungicide at the growth stage of silver-tip, control sucking insects, and (vi) spray trees with an effective antibiotic during bloom. Following the computer program MARYBLYT, developed at the University of Maryland, helps to effectively control fire blight of apple. For more information on controlling fire blight of apple, consult the "Illinois Commercial Tree Fruit Spray Guide 2006" (http://www.extension.iastate.edu/Publications/PM1282.pdf). Also, detailed information on fire blight can be found at: http://www.ag.uiuc.edu/%7Evista/abstracts/a801.html and http://veg-fruit.cropsci.uiuc.edu/Diseases/Fire%20Blight.htm.

Apple Scab: More than expected scab infection has been observed in apple orchards in Illinois in 2006. Apple scab, caused by the fungus *Venturia inaequalis*, is basically a spring-season disease in Illinois. The pathogen overwinters in the leaves on the ground and the spores are mature and disseminated at early bloom. Therefore, control of early season scab (primary scab) of apple is essential. There are several fungicides (i.e., Topsin-M, captan, mancozeb, Polyram, Syllit, Vangard, Scala, and more) that effectively control apple scab. For more information on control of apple scab, consult Illinois Commercial Tree Fruit Spray Guide 2006" (http://www.extension.iastate.edu/Publications/PM1282.pdf). Also, additional information on apple scab is available at websites:
http://www.ag.uiuc.edu/%7Evista/abstracts/a803.html and http://www.ipm.ucdavis.edu/PMG/r4100411.html.



Mohammad Babadoost (217-333-1523; babadoos@uiuc.edu)

June 21 Updates on Codling Moth Phenology

Based on data provided by Bronwyn Aly at Dixon Springs, Gary Grammer near Murphysboro, Sissy Erbacher of Eckert's Orchard at Belleville, Chris Doll at Edwardsville, Kenny Horn from the University of Illinois orchard at Urbana, Curt Christ near Elmwood, and Ken Hall near Poplar Grove, biofix dates for codling moth are listed for six locations in the table below, along with degree-day accumulations and projections for the weather station sites nearest each orchard. (Note that there is no reporting weather station near Edwardsville, so I've used the Springfield station as the best option.)

Orchard Location	Weather Station	Codling Moth Biofix Date	DD_{50} through June 21, 2006	DD_{50} projected through June 28	DD_{50} projected through July 5
Dixon Springs / Murphysboro	Dixon Springs	April 17	1084	1261	1446
Belleville	Belleville	April 20	1039	1217	1403
Edwardsville	Springfield	April 23	949	1128	1312
Urbana	Champaign	May 1	812	985	1160
Elmwood	Peoria	May 6	750	917	1088
Poplar Grove	Freeport	May 10	649	807	961

Developmental events for the codling moth based on degree-day accumulations are presented below. Emergence of second generation moths should be just underway in the southern portion of the state, and the earliest of second generation eggs should begin to hatch in the next few days from the St. Louis area southward. In the far northern portion of the state, second generation moth flight is likely to begin around July 1.

Codling moth development:

First egg hatch (for first generation larvae)	~220 DD_{50} after biofix
50 percent of first generation moths emerged	~240 DD_{50} after biofix
50 percent of first generation eggs hatched	~500 DD_{50} after biofix
99 percent of first generation eggs hatched	~920 DD_{50} after biofix
First moths of second generation emerge	~900 DD_{50} after biofix
Beginning of second generation egg hatch	~1120 DD_{50} after biofix
50 percent of second generation moths emerged	~1349 DD_{50} after biofix
50 percent of second generation eggs hatched	~1580 DD_{50} after biofix

(Table based on ***Orchard Pest Management*** by Beers et al., published by Good Fruit Grower, Yakima, WA.)

Rick Weinzierl (217-333-6651; weinzier@uiuc.edu)

Rates for Assail and Rimon in Apples

A new formulation of Assail (acetamiprid) has been marketed this year, a several apple growers are now making the switch to the new product after having exhausted carry-over supplies of the older formulation. Based on a few phone calls I've received, it appears that it's worth issuing a brief reminder to read the label and follow the directions for the new product. The label on the older formulation, Assail 70 WP (a wettable powder containing 70 percent active ingredient by weight) called for application rates of 1.7 to 3.4 pounds per acre (depending on the target pest), and the rate that had proven to be effective against codling moth in Illinois was 2.3 ounces per acre. For the new formulation, Assail 30 SG (water soluble granules containing 30 percent active ingredient by weight), the rate that was effective against codling moths in trials last year was 5.5 ounces per acre. The range of rates on the label for Assail 30 SG is pretty wide, but 5.5 to 7 ounces per acre should be about right for the target pests in Illinois apple orchards.

The label for Rimon (novaluron) calls for application rates of 20 to 40 fluid ounces per acre … again, a pretty wide range. Until we know more, preliminary data suggests that 30 fluid ounces per acre is the appropriate rate for codling moth control. Note that Rimon's effectiveness is against codling moth and leafrollers, not apple maggot, leafhoppers, or several other pests of apples. Check the label to see the list of target insects.

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Historical Note

I came across this report on the situation of fruit growing in Illinois written by Robert Dunlap from Warsaw, Illinois to the American Pomological Society meeting in Rochester, New York. Mr. Dunlap wrote the report on behalf of Mr. O. B. Galusha from Morrison, Illinois, who was the state representative on the American Pomological Society General Fruit Committee. The date of this correspondence … August 19, 1879.

"Dear Sir:-At the request of O.B. Galusha, I have the pleasure to transmit the following items in regard to fruit growing in this State. Owing to our varied soil and climate, we find growing in our State, and in great profusion, strawberries, currants, gooseberries, raspberries, blackberries, grapes, cherries, pears, peaches, plums, and apples. In most parts of the State the local markets are well supplied with the above and in many sections fruit growing is followed for profit, and the products are sent to the commercial centers.

The varieties of fruit that have been tested are only limited by the number placed upon the market, and failure of many who have engaged in the business is traceable to the fact that, instead of confining themselves to a few of the well tried sorts, they have wandered off after all of the highly extolled but untried varieties. Space will not allow or time permit me to name all the varieties that are really desirable, and I shall confine myself to a list that has generally been found desirable in the greater part of our State.

APPLES.

Red Astrachan, Sops of Wine, Early Harvest, Keswick Codlin-for cooking, *Red June* and *Benoni,* for summer. *Lowel, Rambo, Stannard, Fameuse*, head the list for autumn. *Ben Davis, Willow Twig, Smith's Cider, Rawle's Genet, Jonathan, Domine, Rome Beauty, Minkler, and Little Romanite* are the profitable winter sorts.

CHERRIES.

Early Richmond, Large English Morrello, Late Kentish and *Gov. Wood* have proven hardy. The Bigarreaus, and Heart cherries succeed only in a few places and cannot be depended upon.
Currants and gooseberries succeed well in all parts and any of the varieties in general cultivation succeed.

PEARS.

Were it not for the blight, pear growing would form an important part in fruit raising. But as the trees are short lived, the business is not carried on to any great extent. *Bartlett, Louise Bonne, Flemish Beauty, Howell,* and *Clapp's Favorite* are found to do the best generally, and are profitably grown for market. There is a diversity of opinion as to which is the most desirable, dwarf or standard trees. Our own experience has been that when dwarf trees have been set below the union of stock and graft, they have given the best satisfaction.

PEACHES.

It is only in the southern parts of the State that peaches are grown with any degree of profit. The *Crawfords* are the main reliance, while *Early York, Oldmixon, Heath Cling*, and *Smock* are extensively planted.

STRAWBERRIES.

Have received considerable attention, and many new kinds have been tested. The Wilson and Charles Downing are the ones planted for market. Of the newer varieties *Crescent Seedling* and *Capt. Jack* have many admirers.

RASPBERRIES.

The Doolittle and Mammoth Cluster stand at the head of the list of Blackcaps, and Turner heads the list for red. The Gregg has been extolled, and a gentleman in Douglas County has five acres of this variety in bearing. The berry is some larger than Mammoth Cluster and canes stronger. We think them a little more productive and well worthy of extensive cultivation.

BLACKBERRIES.

The Kittatinny and Lawton are productive whenever they are not injured by the winter. But in central and northern Illinois this does not happen oftener than about one year in five. The Snyder seems to be perfectly hardy, having borne annually for the past ten years, and is being planted to the exclusion of all others.

GRAPES.

The Concord grape comprises four-fifths of all grapes planted. The Ive's Seedling does well, as does also the Hartford.

The principal obstacles to fruit growing are the lack of knowledge of the business and the planting of too many varieties, especially of autumn apples. Many suppose that all that is necessary to success in fruit growing, is to plant the stock and await results. With low prices and markets well supplied, it is necessary that the closest attention be given to the growing and marketing of fruit to make it profitable to the producer.

The canker worm has made its appearance in several parts of the State and is spreading very rapidly. Paris green dissolved in water and applied with a force pump, has been quite effectual in checking he ravages of this insect. Apple orchards must be cultivated to keep the trees in a health and growing condition, or the soil fertilized in some manner. Clover is an excellent fertilizer if left on the ground or plowed under, but it is too often made into hay and the orchard robbed of its benefit. Dr. L.S. Pennington of Whitesides County has practiced sowing buckwheat in his orchard for the past twenty years with satisfactory results.

In a commercial orchard there should be but few varieties and these to consist of early varieties, say one-fourth, and the remainder winter. Autumn apples should not be planted, however good the quality, as the market is usually glutted at this season, and the fruit will keep but a short time. Early apples can always be sold at a profit.

In conclusion we would say that fruit growing has not made many people in this State wealthy, but to those who have been patient and careful cultivators, the results have been satisfactory. We have had much to contend with in determining what to plant, for in our eagerness to get the best, we have tried everything, and as might have been anticipated we had many failures.

Truly yours,
ALBERT DUNLAP.
WARSAW, IL , Aug 19, 1879.

Mosbah Kushad (217-144-5691; kushad@uiuc.edu)

Vegetable Production and Pest Management

Notes on Vegetable Insects

Updates on European corn borer and corn earworm: Dan Fournie reported that corn earworm moth counts jumped dramatically near Collinsville earlier this week (over 70 per night), and Mike Roegge's trap near Quincy caught 24, 21, and 43 moths on June 19-21, respectively. Traps at other locations have been pretty quiet, though Ron Hines' trap on the SIU-Belleville research station continues to catch a few moths (1-2 per night over the last 2 weeks). European corn borer numbers have been low in most areas, though the June 16 issue of *"The Bulletin"* (the Illinois Pest Management and Crop Development Bulletin … the U of I's newsletter for field crops) contained the following …

> Mike Roegge, crop systems Extension educator in Adams County, found a fairly healthy infestation of first-generation European corn borers in early-planted sweet corn on June 7, with 35% to 65% of the plants infested. Second instars were feeding in the whorls, resulting in noticeable windowpane feeding injury when the leaves unfurled. Jim Donnelly, crops specialist with Ag View FS in Walnut, found first instars in early June in an early-planted cornfield. About 10% of the plants also had egg masses. Elsewhere, we have information about flights of European corn borer moths, ranging from virtually zero in southern Illinois (refer to the "Hines Report") to "noticeable" in some northern Illinois counties. I enclose the word *noticeable* in quotation marks because European corn borer moths have been decidedly not noticeable over the past few years.

The June 16 issue of The Bulletin (http://www.ipm.uiuc.edu/bulletin/article.php?id=553) also includes a summary on European corn borer and southwestern corn borer biology.

Western bean cutworm: Degree-day accumulations (base 50 F) since May 1 will reach 1,000 in northern Illinois in the next 7 to 14 days. Information from Iowa and Nebraska indicates that western bean cutworm moth flight should begin at around 1,000 degree-days and peak at around 1420 degree-days. Traps to monitor this year's flight will be operated in several seed corn and dent corn fields, as well as by a few sweet corn growers in the northern part of the state. I'll provide updates in

upcoming issues of this newsletter. For more information on western bean cutworm, see the January 3, 2006, issue of this newsletter.

Squash vine borer and squash bug: Re-using an article from last year, with a few revisions …

The squash vine borer, *Melittia cucurbitae* (Harris) (Lepidoptera: Sesiidae), tunnels in the vines of pumpkins and summer and winter squash; it rarely is found in cucumbers or melons and cannot complete its development except in squash or pumpkins.

Identification. The squash vine borer adult is a black and reddish moth called a clearwing moth because large portions of its hind wings lack scales. These moths are _- to 1-inch long, with a 1- to 1 _-inch wing span. They are active during the daytime and superficially resemble wasps as they fly about. Larvae are yellowish-white with a brown head, 3 pairs of thoracic legs, and 5 pairs of fleshy abdominal prolegs that bear tiny hooks called crochets. Fully-grown larvae are about 1 inch long. Brownish pupae are slightly less than 1 inch long, and they are found in the soil inside a dark, silken cocoon.

Life Cycle. Squash vine borers overwinter as mature larvae or pupae within cocoons 1 _ to 3 inches below the soil surface. Moths emerge and begin to mate and lay eggs in June and July in much of the Midwest (earlier, beginning in May, in southern Illinois and similar latitudes). Moths lay eggs singly at the base of plants or on stems and petioles, beginning when plants start to bloom or "run". Larvae feed within stems or petioles for 2 to 4 weeks, leaving brown, sawdust-like frass (droppings) at holes where they entered the stem. In southern Illinois these pupate and produce a second flight of moths in late summer; in the north, larvae or pupae of the first (and only) generation remain in the soil through the winter.

Plant Injury. Tunneling within vines destroys water- and food-conducting tissues, reducing plant vigor and yield and sometimes killing vines.

Management. Disking or plowing to destroy vines soon after harvest and bury or destroy overwintering cocoons reduces moth populations within a field in the spring. Staggering plantings over several dates also allows some plantings to escape heaviest periods of egg-laying. Early detection of moths and initial damage is essential for timing insecticide applications. For insecticides to be effective, they must be applied before larvae enter stems or petioles. Scout for moths (pheromone lures and traps are available for monitoring flight periods) and look for entrance holes and frass as soon as plants begin to bloom or vine. Apply insecticides beginning 5 to7 days after moths are first detected and at weekly intervals for 3 to 5 weeks, or begin when injury is first noted and make a second application a week later. Capture, Sevin, Thiodan, Asana, Pounce, and Ambush are effective against squash vine borer.

Squash vine borer adult (left) and larva (right)

Squash Bug

Squash bug adult (above), eggs (lower left), and nymphs (lower right.

Late June and July usually bring the beginning of squash bug infestations in Illinois. The squash bug, *Anasa tristis* (De Geer) (Hemiptera: Coreidae), is a perennial and severe pest of pumpkins and squash; it rarely injures cucumbers and melons in the Midwestern United States.

Identification. The squash bug is a "true bug" in the order Hemiptera. Like all adult Hemiptera, adult squash bugs have two pairs of wings, with the front wings hardened at the base and membranous at the tips. Its mouthparts form a needle-like beak that arises from the tip of the head. Adults are brownish black, with yellowish to red-orange markings; they appear oval shaped when viewed from above, and somewhat flattened when viewed from the side. Females lay yellowish-white eggs in small clusters or masses on the upper and lower surfaces of leaves; the eggs quickly darken to a reddish brown color. Eggs hatch to produce grayish-white, wingless nymphs with black legs. The nymphs darken in color as they grow older, and wing pads (the beginnings of adult wings) begin to develop.

Life Cycle. The squash bug overwinters as an adult, and survival is greatest in plant debris, mulch, and field borders or woods. Adults become active in the spring, mate, and females begin feeding and laying eggs in June and July. Nymphs grow to the adult stage in 5 to 6 weeks, and new females mate and begin laying eggs immediately. Populations are greatest during hot, dry summers. Females that reach the adult stage after late July or early August do not mate or lay eggs but instead enter an inactive stage and seek overwintering sites. Squash bugs may be present as nymphs or adults in pumpkins and squash from June through October.

Plant Injury. Squash bugs use piercing mouthparts to penetrate stems, leaves, and fruit and suck sap from plants. This direct damage may cause wilting or even kill plants if populations are great enough. Recent research has found that squash bugs transmit squash yellow vine disease; controlling squash bugs limits the spread of this disease within fields.
Management. Early in the season when adults move into fields and feed on young plants, watch for wilting of seedlings and apply an insecticide if wilting is observed. Scout for eggs of the squash bug on upper and lower surfaces of leaves. If densities exceed one egg mass per plant, use insecticides for control as nymphs begin to hatch. Insecticides labeled for use against squash bug are most effective against young nymphs, and for commercial growers who possess a Pesticide Applicator's License, the pyrethroid insecticide Capture is particularly effective against squash bug. Organic growers may choose to use floating row covers to exclude squash bugs from young plants, but when row covers have to come off to allow pollination, none of the insecticides approved for use in Certified Organic production systems are truly effective against squash bugs.

Rick Weinzierl (217-333-6651; weinzier@uiuc.edu)

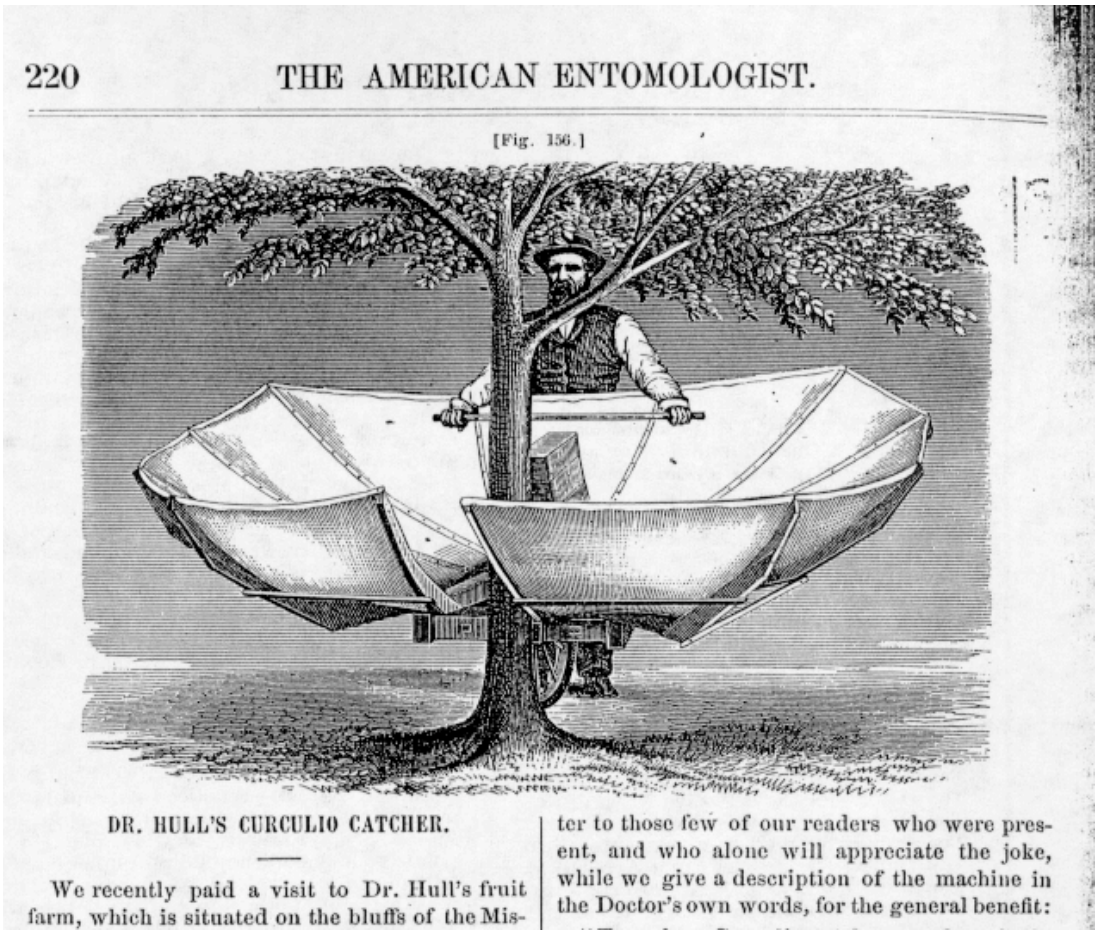
Phytophthora blight of cucurbits

Phytophthora blight, caused by *Phytophthora capsici*, is a very important disease of cucurbits in Illinois. The pathogen can infect plants from the time of sowing seed until harvesting crop. An integrated approach with fungicide seed treatment, field scouting, and fungicide spray is needed to minimize damage of Phytophthora blight in the field. Seed treatment with Apron XL LS (0.65 fl oz/100 lb of seed) significantly reduces pre- and post-emergence seedling infection caused by *P. capsici* and *Pythium* species until about five weeks after sowing seeds. Field scouting, especially after major rainfall, and disking areas with localized infected plants, significantly reduces spread of the disease within the field. Applications of Acrobat 50WP (6.4 oz/A) or Forum 4.16SC (6 fl oz) plus copper sulfate (1.5 lb of Cuprofix Disperss Ultra 40DF/A) alternated with Tanos 50WDG (10 oz/A) plus copper hydroxide (1.5 lb of Kocide-2000/A), at weekly intervals, beginning first sign of the disease, can effectively suppress development and spread of the disease. For information on Phytophthora of cucurbits, refer to http://www.ag.uiuc.edu/%7Evista/abstracts/a945.html.

Mohammad Babadoost (217-333-1523; babadoos@uiuc.edu)

Words of Wisdom … another picture worth 1,000 words

The 1879 letter on fruit growing in Illinois that Mosbah Kushad found and sent to me (included earlier in this issue) prompted me to dig up and include this illustration from an 1860s issue of the ***Prairie Farmer***. Dr. Hull's curculio catcher was designed to jar trees, dislodging plum curculio adults that would fall into the umbrella-shaped bin for collection and disposal. Times have changed … just a little.



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[Fig. 156.]

DR. HULL'S CURCULIO CATCHER.

We recently paid a visit to Dr. Hull's fruit farm, which is situated on the bluffs of the Mis-

ter to those few of our readers who were present, and who alone will appreciate the joke, while we give a description of the machine in the Doctor's own words, for the general benefit:

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